BIOS 3755: Human Physiology
Late Short Summer 2026
Class 9:30 am – 11.40 am MTWR - Whitaker 1214

Instructors: Onur Birol, PhD TAs: TBD
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Office hours: Friday at 11am
and by appointment

Office hours are accessible through Zoom (link in CANVAS). Contact Dr. Birol via email to request a virtual meeting.

RECITATION: TBD – Check Canvas

Comprehensive Final: Wednesday August 5 – 9am-10.30am – Whitaker 1214

Course description: This course is a comprehensive survey of fundamental human systems physiology. Beginning with processes at the cellular level, the course expands to tissue function, integration at organ level and finally multi-organ coordination of physiological processes that maintain homeostasis. Systems covered in detail include nervous and sensory, neuroendocrine, muscular, respiratory, gastrointestinal, cardiovascular and renal.

Course Goals and Learning Outcomes:

To introduce and establish an organizational framework for any future study in human physiology. Upon completion of this course, students will be able to demonstrate understanding of the following topics:

-a working knowledge of terminology in medical physiology.
-fundamental principles of normal function of tissues and organ systems of the human body.
-how physiological function follows anatomical form.
-how different physiological systems provide homeostasis for the human body.

Textbook: "**Vander's Human Physiology"**, 15th Ed., by: Widmaier, Raff, and Strang or later
Publisher: McGraw-Hill
ISBN: 9781259903885
Print and Digital Copies available at GT Barnes & Noble:
https://gatech.bncollege.com/webapp/wcs/stores/servlet/BNCBTBListView

Grading:

Homework assignments (5% each)	25%
Midterm Exams (3 @8-12-15%)	35%
Final Exam	25%
Participation (pre and post class quizzes)	15%

Homework assignments are to be submitted prior to posted deadlines. There are five homework assignments throughout the semester. Lowest grade will be dropped. Homework is open-text, open notes and group work is allowed. For generative AI usage, please refer to the appropriate section in this syllabus. The purpose of homework is to help you identify areas requiring greater effort to reach mastery of course content. All homework assignments must be completed prior to the posted deadline. No extensions will be granted except for exceptional circumstances (see below for excused absences).

Midterm exams are based on material presented in lectures. These exams are closed-book, closed-note and no "cheat sheets" allowed. At the end of the semester, lowest midterm will have 8% weight, middle one will have 12 and the best midterm score will have 15% weight.

The **final exam** is comprehensive and drawn somewhat on content (questions) included on the previous midterm exams.

Lectures: Lecture classes will meet in Whitaker 1214.
Attendance in lecture correlates strongly with performance in this course, and reading assigned chapters **prior** to lecture is encouraged and beneficial for lecture. No lectures will be recorded for you.

Large language models And AI use:
The Rule: All work you submit must be your own. You should never include in your assignment anything that was not written directly by you without proper citation. Acceptable use of AI: (a) Never hit "Copy" within your conversation with an AI assistant. (b) Do not have your assignment and the AI agent itself open on your device at the same time. Similar paraphrase rules as in regular sources apply. Submitting some other resource or AI generated text as your own work constitutes plagiarism and will be referred to Office of Student Integrity (OSI).

Learning Management System (LMS): Resources for this course (including any lecture slides) will be managed via CANVAS. You can find the web site for this course by logging at canvas.gatech.edu. Important announcements and reminders will also be posted via this LMS. You also have the option to download the app for CANVAS on to your preferred mobile device. DO NOT trust canvas for grade calculations, calculate your own grade based on the syllabus breakdown.

Lecture Exams: Midterm exams will be administered during regular class periods (see detailed syllabus schedule). Exams will contain a mixture of multiple choice and short answer questions. They will also be only 60 minutes.

Missed Exams: If you miss an exam for any reason, you will receive a grade of 0 (zero) on that exam unless you petition within 24 h of the start of the missed exam, *and* your petition is approved. Your petition must be submitted in writing and must include documentation of a legitimate reason for missing the exam. You may submit your petition before the exam if you know of your scheduling conflict in advance. Examples of legitimate reasons to miss an exam include a documented illness, illness or death in your immediate family, and participation in official university activities. If your petition is approved, the missed exam grade will not be included in calculating your final average. The middle one (12%) will be dropped and that will give you 23% in total, expanding to 35% at the end of the semester. (midterm scores/23x35)

If you take the exam, you cannot retroactively petition for it. If you feel ill, slept in through your alarm or have something come up right before the exam, it's better not to take it and let me know as soon as possible.

These policies also apply for any missed homework assignments.

Participation: Participation will be based on quizzes in Canvas before and after classes. The quizzes will not be graded for accuracy, only for completion. They will be due 1 hr before class start time and 11pm on the same day. Due to extended summer sessions, some quizzes will have a shorter window for completion, around 1 hour between two topics. You will be allowed to miss 4 quizzes no question asked.

DATE	TOPIC	TEXT CHAPTERS
Jun 29	Introduction to course, Homeostasis	1 (pp. 1-20)
Jun 29	Membranes, Osmosis & Ion Transport part 1	4 (pp. 95-117)
Jun 30	Membranes, Osmosis & Ion Transport part 2	4 (pp. 95-117)
Jun 30	Excitable Membranes	6 (pp. 136-146)
Jul 1	Synapses and Neurotransmitters	6 (pp. 158-171)
Jul 1	Action Potentials and Propagation part 1	6 (pp. 147-157)
Jul 2	*Institute Holiday / Independence day*	
Jul 6	Action Potentials and Propagation part 2	6 (pp. 147-157)
Jul 6	Central Nervous System and Learning	6 (pp. 172-188 + 249-251)
Jul 7	Sensory Physiology I	7 (pp. 190-204)
Jul 7	Sensory Physiology II part 1	7 (pp. 205-234)
Jul 8	Sensory Physiology II part 2	7 (pp. 205-234)
Jul 8	Finish up / Review	
Jul 9	EXAM 1	
Jul 9	Neuroendocrine Signaling Pathways	11 (pp. 321-338)
Jul 13	Skeletal Muscle: Structure & Organization	9 (pp. 258-261)
Jul 13	Mechanics & Physiology of Muscle Shortening p1	9 (pp. 262-277)
Jul 14	Mechanics & Physiology of Muscle Shortening p2	9 (pp. 262-277)
Jul 14	Coordinating Muscle Function	9 (pp. 282-286)
Jul 15	Other muscle: Cardiac and Smooth	9 (pp. 287-319)
Jul 15	Introduction to Osmoregulation part 1	14 (pp. 505-506)
Jul 16	Introduction to Osmoregulation part 2	14 (pp. 505-506)
Jul 16	Renal Anatomy & Function	14 (pp. 490-505)
Jul 20	Renal Regulation and Dynamics	14 (pp. 520-533)
Jul 20	Finish up / Review	
Jul 21	EXAM 2	
Jul 21	Introduction to Cardiovascular System	12 (pp. 362-371)
Jul 22	Physiology of the Heart	12 (pp. 372-389)
Jul 22	Hemodynamics & Exchanges part 1	12 (pp. 390-418 + 431-441)
Jul 23	Hemodynamics & Exchanges part 2	12 (pp. 390-418 + 431-441)
Jul 23	Introduction to Respiratory System	

Jul 27	Gas Exchange and Transport	13 (pp. 445-472)
Jul 27	Buffering the Blood and Ventilation Control p1	13 (pp. 472-487)
Jul 28	Buffering the Blood and Ventilation Control p2	13 (pp. 472-487)
Jul 28	Digestive System	15 (pp. 531-571)
Jul 29	Gut microbiomes and metabolism	16 (pp. 572-594)
Jul 29	Finish up / Review	
Jul 30	EXAM 3	
Jul 30	Animal Energetics	16 (pp. 594-600)

Grade Change:
Grades are not negotiable commodities. However, mistakes can and do occur. If you feel a writing assignment or exam has been incorrectly scored, notify us by email as soon as possible. Any requests for adjustment of grades must be submitted in writing no more than 48 hrs after the work has been returned and should include a detailed explanation as to what you would like us to review. In all cases, the entire assignment will be reevaluated, and a final, revised grade (higher or lower) will be assigned if warranted. Be aware that regrading takes time, so be patient.

Late submission of Homework:
Late submission of homework will be graded based on -10% max points for every 12 hrs. More than 3 days will earn a 0 from that homework assignment without a valid excuse.

Health and safety must come first, as you will grow to fully understand through the content in this course. As the pandemic continues, we want to share our thoughts about our collective experiences:
•Some of our lives may be relatively unaffected by the pandemic, while others have experienced profound tragedies. We *cannot* make assumptions about others' experiences with the virus.
•We ought to be more compassionate with each other and with ourselves - now, perhaps more than ever, is the time to give the gift of grace freely and lovingly.
•Together, we will make this semester as safe, thoughtful, rigorous, and insightful as we can.
If you are feeling sick, either stay at home or wear a mask in the class to protect others.

Honor Code: All students are expected to abide by the Academic Honor Code, which can be viewed online at www.honor.gatech.edu. Plagiarism is the unattributed use of the words of ideas of others; plagiarism on any assignment, including laboratory reports and the group project, will be referred to the Office of Student Integrity for adjudication. If you have any questions regarding your assignments and plagiarism, we encourage you to consult with any of us before you submit the assignment. Cell phones must be turned off during exams, and any student found with a cell phone that is not off during an exam may be referred to the Honor Council.

Generative linguistic models, AI usage: You are allowed to use, if you like, AI generated drafts for your homework assignments. You are not allowed to copy paste an AI generated text and submit it as your own. Similar paraphrase rules as in regular sources apply. Submitting some other resource or AI generated text as your own work constitutes plagiarism and will be referred to Office of Student Integrity (OSI).

Class Content Intellectual Property Policy:
There are tons of very smart people in this course that will be looking to grow intellectually. This means we will all be sharing ideas, some fully formed, some in process, as we grow. Any work and/or communication that you are privy to as a member of this course should be treated as the intellectual property of the speaker/creator, and is not to be shared without their permission. Specifically, students may not make or distribute screen captures, audio/video recordings of, or livestream, any class-related activity, including lectures and presentations, without official GT

accommodations. We have taken care to prepare class recordings that should meet the needs of members of this course, with or without official accommodation, but we invite you to share if there are ways we can make class more inclusive. If your accommodations do stretch beyond what we are able to offer broadly to the course, we ask that any recordings you have not be shared with any other student, whether in this course or not, or with any other person or on any other platform, to not run afoul of applicable privacy laws. Failure to follow this policy on recording or distributing class-related activities may subject you to discipline under the Student Code of Conduct.

All course materials, including In-Class Materials, Exams, 'How To' Guides and Tutorials, Sample Assignments, Student Support materials, and the like are protected by copyright law. Students may take notes and make copies of course materials for their own personal use only. However, students may NOT reproduce, distribute or display (post/upload/ screenshot/take photos of) lectures or course materials in any other way without the instructor's prior written consent (this includes uploading course materials to "study websites" such as Chegg, Course Hero, etc...). Violations of this policy will be subject to student conduct proceedings under GT's Student Code of Conduct, and applicable laws.

Learning Accommodations: If needed, we will make classroom accommodations for students with disabilities. These accommodations should be arranged in advance and in accordance with the Office of Disability Services (http://www.disabilityservices.gatech.edu).

Student-Faculty Expectations Agreement: At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Campus Resources for Students

In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

Academic Support: Georgia Tech offers a variety of free support to enhance your learning and communications skills:

- Academic Support: Academic Success and Advising provides free support for your courses. Students can attend weekly supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.
- Communication Center: http://www.communicationcenter.gatech.edu

o Individualized help with writing and multimedia projects

- Academic advisors for your major: https://advising.gatech.edu/find-your-advisor

Personal Support: In your time at Georgia Tech, you may find yourself in need of support. A starting point is https://belonging.gatech.edu/studentsupport, and below are some direct links to resources available on campus.

- The Office of the Dean of Students: https://studentlife.gatech.edu/services/academic-financial-personal-assistance; **404-894-6367**; Smithgall Student Services Building 2nd floor
- Counseling Center: https://mentalhealth.gatech.edu/ ; **404-894-2575**; Smithgall Student Services Building 2nd floor

o Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.

o *Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at **404-894-2204**.*

- Students' Temporary Assistance and Resources (STAR): https://star.studentlife.gatech.edu/

o Can assist with interview clothing, food, and housing needs.

- Stamps Health Services: https://health.gatech.edu; **404-894-1420**

o Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition

- Veteran's Resource Center: http://veterans.gatech.edu/; 404-385-2067
- Georgia Tech Police: 404-894-2500

Statement of Intent for Inclusivity

As a member of the Georgia Tech community, I am committed to creating a learning environment in which all of my students feel safe and included. Because we are individuals with varying needs, I am reliant on your feedback to achieve this goal. To that end, I invite you to enter into dialogue with me about the things I can stop, start, and continue doing to make my classroom an environment in which every student feels valued and can engage actively in our learning community.